

Species Notes for

Couch's Spadefoot (*Scaphiopus couchii*):

California Wildlife Habitat Relationships (CWHR) System

Level II Model Prototype



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PREFACE

This document is part of the California Wildlife Habitat Relationships (CWHR) System, operated and maintained by the California Department of Fish and Game (CDFG) in cooperation with the California Interagency Wildlife Task Group (CIWTG). The information will be useful for environmental assessments and wildlife habitat management. For more information on the CWHR System and all of its components, please see <http://www.dfg.ca.gov/biogeodata/cwhr/>.

Notes such as these were prepared for 32 species by the US Forest Service Pacific Southwest Research Station as part of a 2000/2001 contract with CDFG. Each is part of a prototypical “Level II” model for a species. As compared with the “Level I” or matrix models initially available in the CWHR System, “Level II” models incorporate spatial issues such as size of a habitat patch and distance between suitable habitat patches.

The notes are divided into three major sections. First, “Distribution, Seasonality and Habitats” represents information in the existing Geographic Information System (GIS) range data and in the Level I matrix model for a species. There is a vector-based GIS layer of geographic range and seasonality for each species in CWHR as well as a matrix containing all suitability ratings – High (H), Medium (M), Low (L) or Unsuitable (-) – by habitat (e.g. BOW or Blue Oak Woodland), stage (e.g. 4P or small tree, open canopy) and life requisite (reproduction, cover, or feeding.). Tools such as “Bioview” within the CWHR software will return these suitability ratings for a species to a user-supplied data set containing habitats and either stages (e.g. 4P) or stage values (e.g. trees of 16.0 average diameter at breast height in a stand of 30% canopy closure).

Second, “Required Attributes of Suitable Habitat Patches” represents spatially-explicit requirements of a species. The information here builds upon what is known about habitat patch size and the most critical attributes of a habitat patch needed by an individual of the species. Applications such as “GRABS”, which stands for “Grouping Resources Algorithm for Biological Data Sets”, will “clump” pixels of a user-supplied raster-based GIS data set representing patches of a suitable habitat and stage for a species. It will calculate area, perimeter, and complexity within each patch and analyze its outside edge for juxtaposition with other habitats and stages of interest. Many of the attributes are what were once called “elements” in the CWHR model.

Third, “Spatial Habitat Requirements for Persistence of Population” represents estimates of the amount of habitat needed to maintain a population of a species. This may be considered the starting point for a “Level III” CWHR model, which would take into account spatial issues as well as a number of population parameters not yet incorporated into CWHR. Such information is included for most, but not all, Level II-modeled species.

A027 Couch's Spadefoot <i>Scaphiopus couchii</i>

Distribution, Seasonality and Habitats

<i>Model Parameter</i>	<i>Threshold Value(s) for Species</i>
<u>Biogeographic Range and Seasonality</u> range of the species, by season, in the state	Species is found in the deserts of southeastern California from 150 to 900 meters in elevation in arid to semiarid habitats. It is active only in spring and early summer.
<u>Suitable Habitats</u> habitats rated in the California Wildlife Habitat Relationships (CWHR) System as high (H), medium (M), or low (L) suitability for reproduction, cover, or feeding	Species finds suitability (H --->L) for reproduction, cover and/or feeding in some or all stages of: Barren, Desert Riparian, Desert Scrub, Desert Succulent Scrub, Desert Wash, Dryland Grain Crops, Evergreen Orchard, Irrigated Row and Field Crops, Lacustrine, and Palm Oasis.
<u>Water</u> whether water is required, enhances, or is irrelevant for habitat suitability	Water is essential for all 3 life requisites. It may take the form of streams, ponds, vernal pools, or human created water bodies.

Required Attributes of Suitable Habitat Patches

<i>Model Parameter</i>	<i>Threshold Value(s) for Species</i>
<u>Patch Size</u> L = low suitability. This is the minimum patch size for persistence of an individual. H = high suitability. Above this patch size, area alone does not increase habitat suitability for an individual.	0.5 acre (L) - must include a breeding pool either within the habitat or adjacent 5 acres (H) - must include 1 or more breeding pools either within the habitat or adjacent

<p><u>Edges</u> requirements for a transition between two life form types – tree/shrub, tree/grass, tree/water, tree/agricultural, shrub/grass, shrub/water, shrub/agricultural, grass/water, grass/agricultural, or water/agricultural</p>	<p>Tree/water, shrub/water, grass/water and water/agricultural edges are used for reproduction.</p>
<p><u>Structural Habitat Attributes</u> requirements for live vegetation, dead or decadent vegetation, vegetation residues, physical features, or human-made features</p>	<p>Friable soil is essential for cover. Either sandy soil or a sand dune (with runoff basins at edge) is required for reproduction and cover.</p> <p>Friable soils (soil temperatures must exceed 20oC to initiate breeding) and standing water (can be of short duration but MUST last for at least 10-12 days and water temperatures must be above 17oC) in close proximity are essential for this species. Mating occurs proximate to the sound of heavy rainfall or sometimes thunder. The active period can be quite short as an individual can consume sufficient food in one sitting to provide of all of its energy reserves for the year.</p>
<p><u>Food</u> vegetative or animal diet requirements</p>	<p>Invertebrates are essential.</p>

Spatial Habitat Requirements for Persistence of Population

<p>Lowest suitability = 50 acres, if suitable patches cover at least 75% of area, are of a minimum size (see above), and are a maximum of 10 meters apart</p> <p>Highest suitability = greater than 200 acres, if suitable patches cover at least 75% of area, are of a minimum size (see above), and are less than 5 meters apart</p>
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